EMCO

EMCOMAT–SERIES

Universal milling machines with toolmaker precision for industrial use

EMCOMAT FB–600 MC



EMCOMAT FB-3 L WITH POSITION DISPLAY

The EMCOMAT FB-3 L is ideal for tool and mold making, for equipment and prototype manufacturing and small-series production. It has also met with great success in schools and training workshops. As the smallest in EMCO's range of milling machines, the FB-3 L is built to meet the highest standards of precision and flexibility – and all at an unbeatable price.



Pneumatic distributor
(Steel)

1 VERTICAL MILLING HEAD

/ Swivels +/-90°
/ Speedy changeover to horizontal milling
/ Outstanding repeat accuracy
/ Quiet operation
/ Adjustable precision taper roller bearings

2 GUIDEWAYS

/ Linear guides in all three axes
/ Large
/ Durable
/ Low wear

3 MACHINE STAND

/ Low vibration, stress-free cast iron
/ Three-point support



Machine with optional equipment

4 CONTROL PANEL

/ Control panel with ergonomically designed keypad

5 HANDWHEELS

/ Safety handwheels for X and Y
/ Ergonomic design
/ Excellent feed precision
/ Easily legible scale rings

6 MACHINE BASE

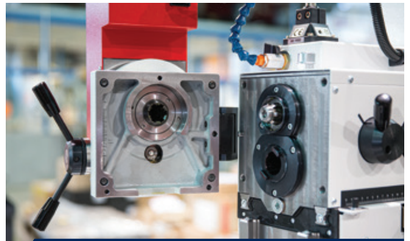
/ Rigid, welded sheet steel
/ Integrated coolant system
/ Removable coolant reservoir

TECHNICAL HIGHLIGHTS



VERTICAL MILLING HEAD

Vertical milling head with DIN 2080 SK 30 and clampable 45 mm quill travel. The vertical milling head swivels +/- 90°.



HORIZONTAL MILLING HEAD

Horizontal milling spindle with DIN 2080 SK 30 tool chuck. Swivel-mounted vertical milling head. Vertical-head drive with palloid tooth system.



SAFETY HANDWHEELS (X/Y)

Ergonomically placed handwheels ensure easy and safe handling in all three axes.



© Dr. Johannes Heidenhain GmbH

POSITION DISPLAY UNITS HEIDENHAIN ND 7013

With 7" screen for touch operation.



© Dr. Johannes Heidenhain GmbH

POSITION DISPLAY UNITS HEIDENHAIN POSITIP 8016

With 12" screen for touch operation.



OPTIONAL

Dividing head with tailstock.



CONTROL PANEL

Control panel with ergonomically designed keypad and a swivel mounted position display for easy operation.

HIGHLIGHTS

- Compact, vibration-free gray cast iron machine stand
- Swiveling vertical milling head
- Vertical-head drive with palloid tooth system for quiet operation
- Mechanical safety handwheels with scale ring in X and Y axis
- Integrated safety clutch
- Adjustable, long-life precision taper roller bearings for vertical and horizontal milling spindles
- Automated stepless feed in X and Y
- Swivel-mounted digital display

EMCOMAT FB-450 AND FB-600 WITH POSITION DISPLAY

With the EMCOMAT FB-450 / FB-600 including position display, EMCO mainly addresses production-oriented users. The machine is characterised by high cutting performance, high precision and universal application possibilities. The amply dimensioned work area facilitates the processing of large workpieces, while the comprehensive accessories help resolve even the most difficult processing problems in a straightforward manner. Equipped with zero-play ball screws and linear guides, the EMCOMAT FB-450 and FB-600 allows for exact axis positioning and increased rapid traverse speeds.

1 VERTICAL MILLING HEAD

/ With hydraulic tool clamping for Y and Z milling spindles DIN 69871 SK 40

2 GUIDEWAYS

/ Linear guides in all three axes
/ Large
/ Durable
/ Low wear

3 COOLANT TANK

/ External coolant tank with coolant pump



Machine with optional equipment

4 MACHINE STAND

/ Massive cast construction
/ For easy transport

5 CONTROL PANEL

/ Position display unit based on SINUMERIK 828D

6 HANDWHEELS

/ Safety handwheels in all three axes
/ Ergonomic design
/ Excellent feed precision
/ Easily legible scale rings

EMCOMAT FB-450 MC AND FB-600 MC

EMCOMAT FB-600 MC with a travel in X of 600 mm and a travel in Y / Z of 400 mm and the EMCOMAT FB-450 MC with a X / Y / Z travel of 450 mm / 350 mm / 400 mm completes the conventional and/or cyclecontrolled milling machine series for the machining of larger workpieces. EMCOMAT FB-450 MC and FB-600 MC is available with Sinumerik 828D control including „manual machine“ or Heidenhain TNC620.

Programming is performed with user guidance and graphic simulation of the machining steps, thus enabling user-friendly and at the same time efficient programming. The highlights: larger travels and stronger main motor.



Dashboard
(Steel)

1 VERTICAL MILLING HEAD

/ With hydraulic tool clamping for Y and Z milling spindles DIN 69871 SK 40

2 GUIDEWAYS

/ Linear guides in all three axes
/ Large
/ Durable
/ Low wear

3 COOLANT TANK

/ External coolant tank with coolant pump

4 MACHINE STAND

/ Massive cast construction
/ For easy transport



Machine with optional equipment

5 CONTROL PANEL

/ Swivel-mounted
/ With Sinumerik 828D or Heidenhain TNC620

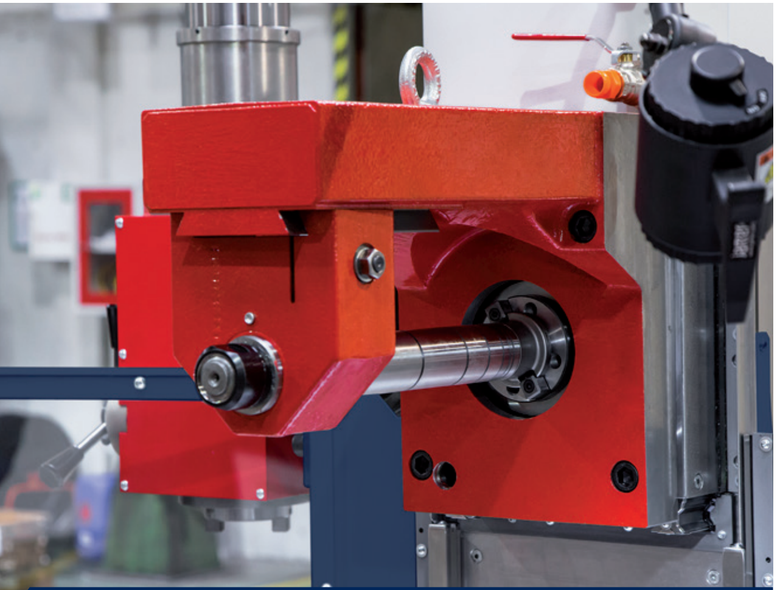
6 HANDWHEELS

/ Safety handwheels in all three axes
/ Ergonomic design
/ Excellent feed precision
/ Easily legible scale rings

7 WORKSPACE GUARD

/ Retractable with large chip shield
/ Telescopic covers

TECHNICAL HIGHLIGHTS



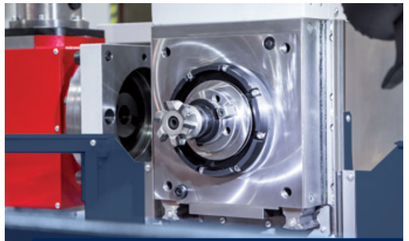
HORIZONTAL MILLING

Horizontal milling with long milling arbor for clamping several milling tools. The overarm for supporting long milling arbors is mounted instead of the vertical milling head.



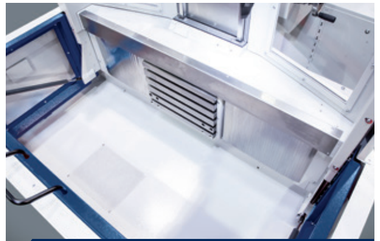
SAFETY HANDWHEELS

Ergonomically placed handwheels ensure easy and safe handling in all three axes.



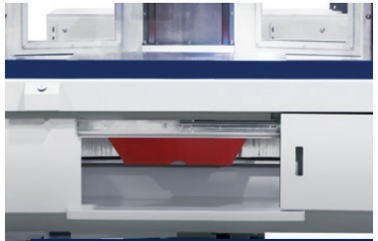
CHANGEOVER TO HORIZONTAL MILLING

Horizontal milling spindle DIN 69871 SK 40



RETRACTABLE WORKSPACE

Retractable workspace guard with vertical clamping area.



CHIP SHIELD

A large chip shield at the front of the machine allows for trouble-free chip disposal.



SWIVELING DEVICE

Swivel-mounted vertical milling head. Controlled by end switch.



SWIVEL-MOUNTED VERTICAL MILLING HEAD

Swiveling vertical milling head with quill function for manual Drilling operations. A swivel range of +/-90° allows to easily perform even difficult machining operations.

HIGHLIGHTS

- Compact, vibration-free cast iron machine stand
- Swiveling vertical milling head
- Mechanical safety handwheels with scale ring
- Automated stepless feed in X, Y and Z axes
- Coolant device
- Linear guides in X/Y/Z

CONTROL OR POSITION DISPLAY

Machine tools are facing ever-increasing requirements. They are supposed to be ever faster, ever more precise and ever more user-friendly!
Nowadays, these criteria are met by modern CNC control units. What is new, however, is the wish for networking, something that the state-of-the-art controls included in EMCO 's machine tool programme are capable of. Many customers are asking for standardized control units within their production. In order to cater for these needs, the Emcomat FB-450 and FB-600 are available with the following versions.

Sinumerik 828D with „Manual Machine"

The Manual Machine operating area provides you with machining capabilities as for a cycle milling machine. All important machining actions can be performed without an associated part program needing to be created.
The following functions are available:
· Measure tool
· Traverse axes
· Set zero offset (ZO)
· Drill, such as centered drilling, centering, deep-hole drilling
· Mill, such as face milling, pocket milling, multi-edge stud milling
· Mill contour
User-friendly input screens with help screens and animated elements are available for parameterizing the cycles.



Heidenhain's TNC 620

is a compact, versatile contouring control with three controlled axes and one controlled spindle.
· Programme input with HEIDENHAIN conversational programming and according to DIN/ISO
· Radius/length tool compensation in several tool charts
· Contour elements and free contour programming
· Drilling cycles: tapping, deep drilling, grating, lowering etc.
· Milling cycles: pockets, notches, contouring, multi-pass milling, thread milling, etc.
· Coordinate transformation
· Programming assistance
· Teach-in
· Touch probe cycles



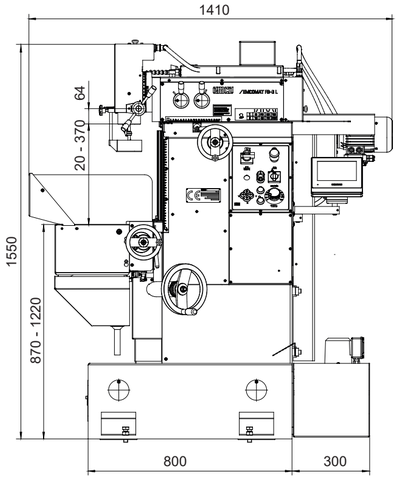
Position display

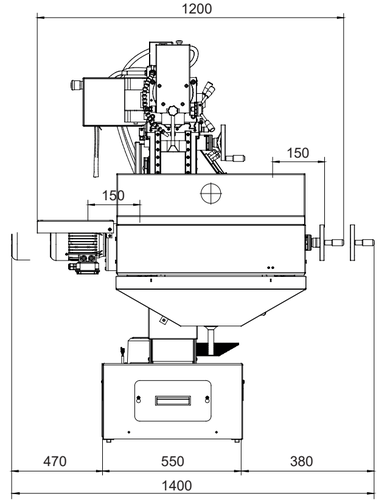
Thanks to the 3-axis position display based on SINUMERIK 828D, the positions of the X-, Y- and Z-axes are permanently displayed on the TFT screen. A linear measuring system is used to identify the positions, which are displayed with an accuracy of 0.001 mm.
Possibilities include: tools, speed, feed rate (T, S, F), setting of the zero point, tool list, tool chart, radius compensation



INSTALLATION PLAN

EMCOMAT FB-3 L

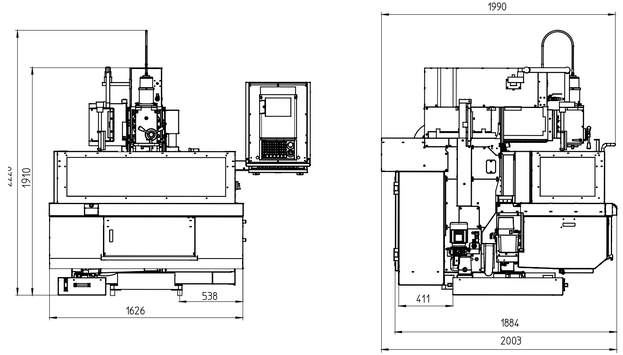




Indications in millimeters

INSTALLATION PLAN

EMCOMAT FB-450 MC / FB-450 with position display



Indications in millimeters

TECHNICAL DATA

Work area	EMCOMAT FB-3 L	EMCOMAT FB-450	EMCOMAT FB-600
Horizontal longitudinal feed (X)	300 mm	450 mm	600 mm
Vertical table feed (Z)	350 mm	400 mm	400 mm
Horizontal cross feed (Y)	200 mm	350 mm	400 mm

Table			
Clamping area vertical table (LxW)	600 x 180 mm	400 x 270 mm	400 x 270 mm
Width/number of T-grooves	12 x 21 mm / 2 pieces	14 mm (H 8) / 5 pieces	14 mm (H 8) / 5 pieces
Permissible workpiece weight	max. 50 kg	450 kg	450 kg
Clamping area rigid anlge table (LxW)	600 x 200 mm	800 x 400 mm	800 x 400 mm
Width/number of T-grooves	12 x 21 mm / 4 pieces	14 mm (H 8) / 8 pieces	14 mm (H 8) / 8 pieces
Permissible workpiece weight	max. 50 kg	300 kg	300 kg

Horizontal milling spindle			
Tool chuck	DIN 2080 SK 30	DIN 69871 SK 40	DIN 69871 SK 40
Mechanical speeds	8	stufenlos	stufenlos
Speed range	80 – 2200 rpm	10 – 5000 rpm	10 – 5000 rpm
Clearance above table	80 – 430 mm	230 – 630 mm	230 – 630 mm

Vertical milling head			
Tool chuck	DIN 2080 SK 30	DIN 69871 SK 40	DIN 69871 SK 40
Quill travel	45 mm	80 mm	80 mm
Swiveling vertical milling head	+/–90°	+/–90°	+/–90°
Mechanical speeds	8	stufenlos	stufenlos
Speed range	80 – 2200 rpm	10 – 5000 rpm	10 – 5000 rpm
Clearance above table	35 – 385 mm	40 – 440 mm	40 – 440 mm

Power	EMCOMAT FB-3 L	EMCOMAT FB-450	EMCOMAT FB-600
Power	100% / 60% ED, 1,1 / 1,4 kW	100% / 40% ED, 7 / 10 kW	100% / 40% ED, 9 / 13 kW

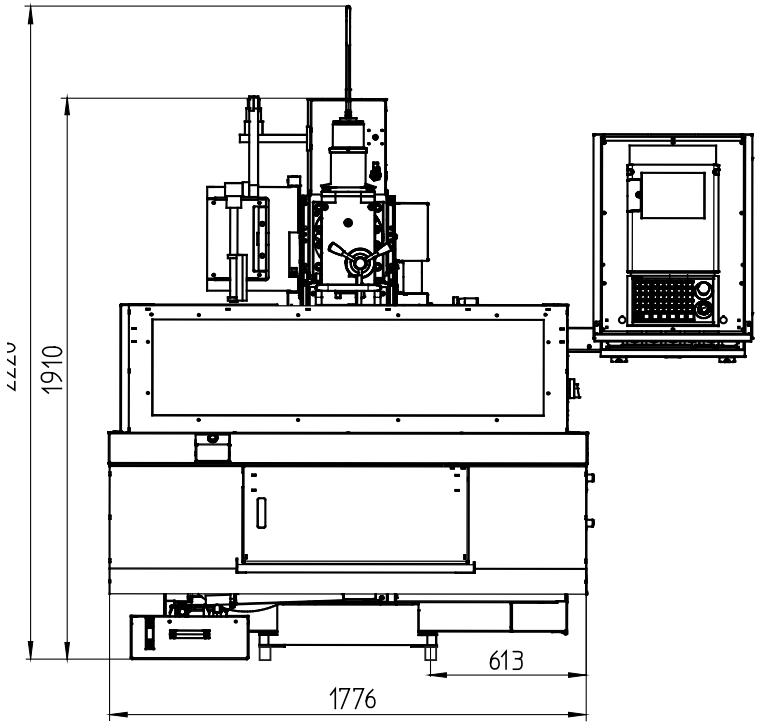
Feed drive			
Leistung Vorschubmotor 100% ED	0,55 kW	1 kW	1 kW
Feed range X/Y/Z axis – with position display unit – with track control (MC)	X/Y: 50-550 mm/min Z: manually	10 – 2000 mm/min 10 – 5000 mm/min	10 – 2000 mm/min 10 – 5000 mm/min
Rapid motion speed in X/Y/Z	X/Y: 1200 mm/min Z: manually	2000 / 5000 mm/min	2000 / 5000 mm/min
Feed force X/Y/Z	8 / – kN	10 / 15 kN	10 / 15 kN

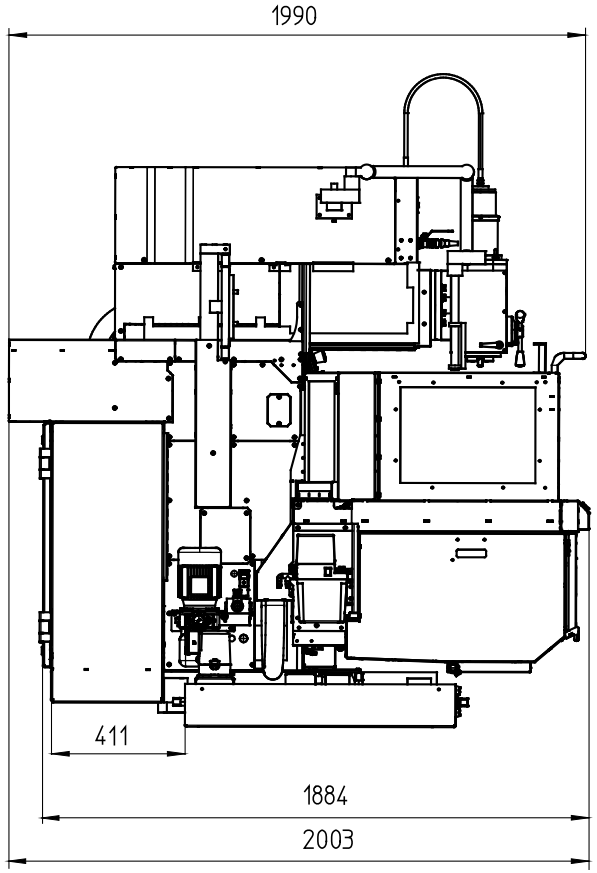
Coolant system			
Coolant in tank	30 liters	40 liters	40 liters
Max. pump capacity	30 l/min	30 l/min	30 l/min

Machine dimensions			
Overall length	1410 mm	1980 mm	2100 mm
Overall width	1150 mm	2030 mm	2190 mm
Overall height	1550 mm	1990 mm	1990 mm
Weight of machine	500 kg	2270 kg	2370 kg

INSTALLATION PLAN

EMCOMAT FB-600 MC /
FB-600 with position display





Indications in millimeters

EMCO

beyond standard

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